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A Guide to Helminth Parasites Reported from Shorebirds (Charadriidae) from the Americas

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A Guide to Helminth Parasites Reported from Shorebirds (Charadriidae) from the Americas

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Introduction

The shorebird family Charadriidae in the Americas consists of 21 native and 7 vagrant species. Members of the family occupy a diversity of open habitats, ranging from Arctic tundra during nesting, coastal sands, and mudflats to inland prairies, savannas, and wetlands. Some native plovers migrate from nesting grounds in North America to wintering grounds in South America (Hayman et al., 1986; Paulson, 2005; Winkler et al., 2020).

Our search of the literature revealed the following: 17 of 28 host species infected with helminth parasites, 153 helminth species, and 199 infections involving 13 geographic areas. The purpose of this guide is to provide easy access to this data and information relevant to helminth infections in charadriids from the Americas. Information is summarized in Tables I–VI.

Table I lists in sequence host, parasite, geographic location, and attenuated citation. Common names are given for each host. Host names are listed alphabetically, and older scientific names used in the literature search are in parentheses. Host geographic distribution is abbreviated as follows: NA = North America, M = Mexico, CA = Central America, SA = South America, A = Americas (NA + M + CA + SA). If present, parasite species are listed in the following order: trematode, cestode, nematode, and acanthocephala. The helminth species names are listed as they were given in the cited literature.

Tables II–V are parasite-host lists for trematode, cestode, nematode, and acanthocephalan species and host of the species associated with the parasite. Table VI is a summary of information extracted from the tables and literature cited section.

Table I. Checklist of helminth parasites reported for the shorebird family Charadriidae from the Americas

Native hosts in the Americas	Parasite	Geographic location	Citation
Snowy Plover A			
<i>Charadrius nivosus (alexandrinus)</i>	<i>Paramaritrempopsis solielangi</i>	Belize	Deblock, S., and A. G. Canaris. 2000
	<i>Gyrocoelia miligani</i>	Michigan, Texas	Webster, J. D. 1951
	<i>Shipleya inermis</i>	Michigan, Texas	Webster, J. D. 1951
	<i>Nadejdolepis litoralis</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
	<i>Nadejdolepis paranitidulans</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
Puna Plover SA			
<i>Charadrius alticola</i>	No reference found	Andes	Hayman, P., et al. 1986
Collared Plover A			
<i>Charadrius collaris</i>	<i>Gyrocoelia crassa</i>	Central and South America	Yamaguti, S. 1959
	<i>Gyrocoelia fuhrmani</i>	Mexico, South America	Rêgo, A. A. 1968
	<i>Hymenolepis collariella</i>	Mexico, Texas	Coil, W. H. 1956; Deblock, S., and F. Rosé. 1962
	<i>Hymenolepis hughesi</i>	Guadeloupe	Graber, M., and J. Euzéby. 1976b
	<i>Taenia charadrii</i>	Brazil	Hartwich, G., and I. Kiliás. 1992
	<i>Sciadocara umbellifera</i>	Peru	Wong, P. L., and R. C. Anderson. 1991
	<i>Stellocaronema skrjabini</i>	Peru	Wong, P. L., and R. C. Anderson. 1991
Two-Banded Plover SA			
<i>Charadrius falklandicus</i>	<i>Notocotylus chionis</i>	Argentina-Patagonia	Capasso, S., et al. 2017
	<i>Odhneria odhneri</i>	Argentina-Patagonia	Capasso, S., et al. 2017
	<i>Tetrameres megaphasmidiata</i>	Argentina-Patagonia	Cremona, F. M., et al. 2001
Ringed Plover NA			
<i>Charadrius hiaticula</i>	<i>Paramonostomum actidis</i>	Puerto Rico	Thatcher, V. E. 1993
	<i>Aploparaksis brachyphallos</i>	North America	Yamaguti, S. 1959
	<i>Eulimdana lari</i>	North America?	Hoberg, E. P. 1986
	<i>Eulimdana sonni</i>	Canada	Bartlett, C. M. 1992
Piping Plover NA			
<i>Charadrius melodus</i>	<i>Gynaecotyla sippiwissettensis</i>	USA	Yamaguti, S. 1971
	<i>Hymenolepis hughesi</i>	Texas; Guadeloupe	Webster, J. D. 1947; Graber, M., and J. Euzéby. 1976a; Graber, M., and J. Euzéby. 1976b
	<i>Progynotaenia americana</i>	Michigan, Texas	Webster, J. D. 1947
	<i>Chevreuxia americana</i>	Texas	Wong, P. L., and R. C. Anderson. 1991
Rufous-chested Dotterel SA			
<i>Charadrius modestus (Zonibyx)</i>	<i>Porrocaecum falklandicus</i>	Florida	Yamaguti, S. 1961
Mountain Plover NA, M			
<i>Charadrius montanus</i> (<i>Podasocys</i> and <i>Eupoda</i>)	No reference found	Great Plains, Arizona, California, Texas, Mexico	Paulson, D. 2005
Semipalmated Plover A			
<i>Charadrius semipalmatus</i>	<i>Cyclocoelum obscurum</i>	Cuba	Macko, J. K. 1969
	<i>Echinochasmus</i> sp.	Florida	Loftin, H. 1960
	<i>Notocotylus stagnicola</i>	USA	Yamaguti, S. 1971
	<i>Levinseniella carcinidis</i>	USA	Doss, M. A., and M. M. Farr. 1969a
	<i>Levinseniella cruzi</i>	California	Yamaguti, S. 1971
	<i>Maritrema gratiosum</i>	Oklahoma, USA	Yamaguti, S. 1971
	<i>Maritrema ovatum</i>	North America	Yamaguti, S. 1971
	<i>Microphallus claviformes</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Microphallus kinsellai</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
	<i>Paramaritrempopsis solielangi</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
	<i>Paramonostomum actidis</i>	Puerto Rico	Cable, R. M., et al. 1960

Table I. (cont.) Helminth parasites reported for the shorebird family Charadriidae from the Americas

Native hosts in the Americas	Parasite	Geographic location	Citation
	<i>Hymenolepis hughesi</i>	Guadeloupe	Graber, M., and J. Euzaby. 1976b
	<i>Nadejdolepis litoralis</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
	<i>Paraliga charadrii</i>	Manitoba, New Brunswick, Canada, Delaware, USA, Venezuela	Didyk, A. S., and M. D. B. Burt. 1998
	<i>Progynotaenia americana</i>	Texas; Belize	Webster, J. D. 1951; Canaris, A. G., and J. M. Kinsella. 2001
	<i>Chevreuxia americana</i>	Florida, USA	Wong, P. L., and R. C. Anderson. 1991
	<i>Skrjabinoclava horrida</i>	Cuba	Barus, V., and N. L. Hernandez. 1971
	<i>Skrjabinoclava morrisoni</i>	Canada, USA	Wong, P. L., and R. C. Anderson. 1990b
	<i>Skrjabinoclava pusillae</i>	Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia; Florida, Texas	Wong, P. L., et al. 1990; Wong, P. L., and R.C. Anderson. 1990b
	<i>Skrjabinoclava semipalmatae</i>	Texas; California	Wong, P. L., and R. C. Anderson. 1987; Wong, P. L., and R. C. Anderson. 1990b
	<i>Skrjabinoclava</i> sp.	Alberta, Saskatchewan, Manitoba, Ontario, New Brunswick, Nova Scotia, California	Wong, P. L., et al. 1990
	<i>Skrjabinoclava tupacincal</i>	New Brunswick	Wong, P. L., and R. C. Anderson. 1990b
	<i>Stellocaronema skrjabini</i>	Puerto Rico; Alberta, Manitoba, California, Texas, USA, Peru	Whittaker, F. H., et al. 1970; Wong, P. L., and R. C. Anderson. 1991
	<i>Viktorocara capillaris</i>	Alberta, Manitoba; Ontario	Wong, P. L., et al. 1990; Wong, P. L., and R. C. Anderson. 1991
	<i>Viktorocara limosae</i>	Alberta, Manitoba; California, USA	Wong, P. L., et al. 1990; Wong, P. L., and R. C. Anderson. 1991
	<i>Plagiorhynchus charadrii</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
Killdeer A			
<i>Charadrius vociferous (Oxyechus)</i>	<i>Collyriclum</i> sp.	Oklahoma	Riggins, M. A. 1953
	<i>Cyclocoelum lanceolatum</i>	California; Colorado; New Mexico, Texas	Hannum, C. A., and B. E. Wilson. 1934; Eckman, M. K. 1968; Blaylock, R. B. 1989
	<i>Cyclocoelum obscurum</i>	Colorado	Blaylock, R. B. 1989
	<i>Cyclocoelum triangularis</i>	Oklahoma	Riggins, M. A. 1953
	<i>Echinoparyphium aconiatum</i>	Colorado, New Mexico, Texas	Blaylock, R. B. 1989
	<i>Echinoparyphium baculus</i>	Texas	Blaylock, R. B. 1989
	<i>Echinostoma</i> sp.	Colorado	Eckman, M. K. 1968
	<i>Microphallus quechuasensis</i>	Peru	Caballero, C. E., and H. N. Ibáñez. 1970
	<i>Notocotylus attenuatus</i>	Colorado, New Mexico	Blaylock, R. B. 1989
	<i>Plagiorchis vitellatus</i>	Colorado	Blaylock, R. B. 1989
	<i>Stomylotrema vicarium</i>	Florida	Forrester, D. J., and M. G. Spalding. 2003
	<i>Tanaisia fedtschenkoi</i>	Georgia; Colorado; British Columbia; New Mexico, Texas; Florida	Byrd, E. E., and J. F. Denton. 1950; Eckman, M. K. 1968; Jensen, D. N. 1971; Blaylock, R. B. 1989; Forrester, D. J., and M. G. Spalding. 2003
	<i>Transcoelom</i> sp.	Colorado	Blaylock, R. B. 1989
	<i>Uvitellina macroisophaga</i>	California; Oklahoma	Hannum, C. A., and B. E. Wilson. 1934; Riggins, M. A. 1953
	<i>Uvitellina psuedocotylea</i>	USA	Doss, M. A., and M. M. Farr. 1969b
	<i>Anomotaenia bacilligera</i>	Oklahoma	Riggins, M. A. 1953
	<i>Anomotaenia filovata</i>	Nebraska; Colorado; New Mexico, Texas	Clark, D. T. 1952; Eckman, M. K. 1968; Blaylock, R. B. 1989
	<i>Aploparaksis</i> sp.	Colorado; Texas	Eckman, M. K. 1968; Blaylock, R. B. 1989

Table I. (cont.) Helminth parasites reported for the shorebird family Charadriidae from the Americas

Native hosts in the Americas	Parasite	Geographic location	Citation
	<i>Choanotaenia macracantha</i>	Oklahoma	Riggins, M. A. 1953
	<i>Choanotaenia</i> sp.	Colorado	Eckman, M. K. 1968
	<i>Gyrocoelia miligani</i>	Antigua; Oklahoma	Baer, J. G. 1940; Riggins, M. A. 1953
	<i>Megalacanthus</i> sp.	Florida	Forrester, D. J., and M. G. Spalding. 2003
	<i>Monopylidium</i> sp.	Colorado, New Mexico, Texas	Blaylock, R. B. 1989
	<i>Progynotaenia americana</i>	Oklahoma; Oregon, Washington; Colorado; Florida; Cuba	Riggins, M. A. 1953; Weatherly, N. F., and A. G. Canaris. 1961; Eckman, M. K. 1968; Forrester, D. J., and M. G. Spalding. 2003; Macko, J. K., and M. Spakulova. 1998
	<i>Proterogynotaenia neoarctica</i>	Michigan, Texas; Oklahoma; Colorado	Webster, J. D. 1951; Riggins, M. A. 1953; Eckman, M. K. 1968
	<i>Proterogynotaenia odhneri</i>	Cuba	Macko, J. K., and M. Spakulova. 1998
	<i>Capillaria contorta</i>	Colorado; Texas	Eckman, M. K. 1968; Blaylock, R. B. 1989
	<i>Chevreuxia americana</i>	Colorado, New Mexico, Texas; Alberta, Manitoba	Blaylock, R. B. 1989; Wong, P. L., et al. 1990
	<i>Chevreuxia</i> sp.	Colorado	Eckman, M. K. 1968
	<i>Chevreuxia vanelli</i>	Florida	Forrester, D. J., and M. G. Spalding. 2003
	<i>Dispharynx nasuta</i>	Canada; Florida	Wong, P. L., et al. 1990; Forrester, D. J., and M. G. Spalding. 2003
	<i>Dispharynx spiralis</i>	Colorado	Eckman, M. K. 1968
	<i>Oxyspirura</i> sp.	Texas	Blaylock, R. B. 1989
	<i>Schistorophus laciniatus</i>	Oklahoma	Riggins, M. A. 1953
	<i>Skrjabinocerca prima</i>	Alberta	Wong, P. L., et al. 1990
	Spirurid larvae	Florida	Forrester, D. J., and M. G. Spalding. 2003
	Spiruroidean nematode	Oklahoma	Riggins, M. A. 1953
	<i>Stellocaronema skrjabini</i>	Texas	Wong, P. L., and R. C. Anderson. 1991
	<i>Streptocara</i> sp.	Alberta	Wong, P. L., et al. 1990
	<i>Strongyloides</i> sp.	Colorado, New Mexico, Texas; Florida	Blaylock, R. B. 1989; Forrester, D. J., and M. G. Spalding. 2003
	<i>Viktorocara capillaris</i>	Alberta, Manitoba, Ontario	Wong, P. L., et al. 1990
	Acanthocephalan larvae	Florida	Forrester, D. J., and M. G. Spalding. 2003
	<i>Mediorhynchus papillosus</i>	Colorado	Eckman, M. K. 1968
	<i>Mediorhynchus robustus</i>	Oklahoma	Riggins, M. A. 1953
	<i>Polymorphus minutus</i>	Colorado; Texas	Eckman, M. K. 1968; Blaylock, R. B. 1989
Wilson's Plover A			
<i>Charadrius wilsonia</i> (Pagolla)	<i>Acanthoparyphium pagollae</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Gynaecotyla adunca</i>	USA	Doss, M. A., and M. M. Farr. 1969a
	<i>Levinseniella carteretensis</i>	North Carolina	Coil, W. H., and R. Heard. 1966
	<i>Levinseniella hunteri</i>	Louisiana	Heard III, R. W. 1968
	<i>Levinseniella leptophallus</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Maritreminoides patulum</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Mecynophallus glandulosus</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Megalophallus reamsi</i>	Florida Keys	Overstreet, R. M., and R. W. Heard III. 1995
	<i>Microphallus claviformes</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Neivaia cymbium</i>	Brazil	Fernandes, B. M. M., et al. 2015
	<i>Odhneria odhneri</i>	Georgia	Sinclair, N. R. 1971
	<i>Paramonostomum actidis</i>	Puerto Rico	Cable, R. M., et al., 1960
	<i>Parorchis holotestis</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Pseudospelotrema charadrii</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Tanaisia valida</i>	Northern Colombia	Rietschel, G., and B. Werding. 1978
	<i>Zygotocyle lunata</i>	North America; Brazil	Yamaguti, S. 1971; Fernandes, B. M. M., et al. 2015
	<i>Gyrocoelia pagollae</i>	North Carolina, Texas;	Coil, W. H. 1963;

Table I. (cont.) Helminth parasites reported for the shorebird family Charadriidae from the Americas

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<i>Charadrius</i> sp.	<i>Paraprogynotaenia jimenezi</i>	Puerto Rico	Cable, R. M., and R. M. E. Myers. 1956
	<i>Ancyracanthopsis winegardi</i>	Cuba	Rysavy, B. 1996
	<i>Sciadocara umbellifera</i>	Texas	Wong, P. L., and R. C. Anderson. 1990b
		Cuba; Texas	Barus, V., and N. L. Hernandez. 1971;
	<i>Skrjabinoclava horrida</i>	Texas; Cuba	Wong, P. L., and R. C. Anderson. 1991
			Wong, P. L., and R. C. Anderson. 1983;
	<i>Skrjabinoclava pusillae</i>	New Brunswick, Canada	Barus, V., and N. L. Hernandez. 1971
	<i>Skrjabinoclava semipalmatae</i>	California	Wong, P. L., and R. C. Anderson. 1987
	<i>Skrjabinoclava wilsonae</i>	Texas	Wong, P. L., and R. C. Anderson. 1987
	<i>Tropisurus nouveli</i>	Cuba	Wong, P. L., and R. C. Anderson. 1987
	<i>Viktorocara capillaris</i>	Texas	Barus, V., and N. L. Hernandez. 1971
	<i>Viktorocara schejkini</i>	Cuba	Wong, P. L., and R. C. Anderson. 1990b
	<i>Plagiorhynchus crassicolle</i>	Cuba	Barus, V., and N. L. Hernandez. 1971
	<i>Leucochloridium propinqua</i>	North America	Barus, V., and N. L. Hernandez. 1971
	<i>Spelotrema excellens</i>	USA	Yamaguti, S., 1971
<i>Tanaisia fedtschenkoi</i>	USA	Yamaguti, S., 1971	
<i>Capillaria contorta</i>	North America, South America	Yamaguti, S. 1961	
<i>Porrocaecum ensicaudatum</i>	North America	Yamaguti, S. 1961	
Tawny-throated Dotterel SA			
<i>Oreopholus ruficollis</i>	<i>Oxynema</i> sp.	Argentina	Drago, F. B., et al. 2020
Diademed Plover SA			
<i>Phegornis mitchellii</i>	No reference found	Andes in Argentina, Chile, Peru	Hayman, P., et al. 1986
American Golden Plover A			
<i>Pluvialis dominica</i>	<i>Levinseniella propinqua</i>	British Columbia, Canada	Ching, H. L. 1965
	<i>Progynotaenia americana</i>	Canada	Mahon, J. 1956
	<i>Porrocaecum ensicaudatum</i>	Hawaii	van Riper, S. G., and C. van Riper. 1984
	<i>Porrocaecum semiteres</i>	Hawaii	van Riper, S. G., and C. van Riper. 1984
	<i>Arythmorhynchus comptus</i>	Alaska	Van Cleave, H. J., and R. Rausch. 1950
	<i>Mediorhynchus orientalis</i>	Hawaii	Schmidt, G. D., and R. E. Kuntz. 1977
	<i>Plagiorhynchus charadrii</i>	Hawaii	Amin, O. M., et al. 1999
Pacific Golden Plover NA			
<i>Pluvialis fulva</i>	<i>Echinostoma charadrii</i>	USA	Doss, M. A., and M. M. Farr. 1969b
Black-bellied Plover A			
<i>Pluvialis squatarola</i> (<i>Squatarola</i>)	<i>Cotylurus cornutus</i>	Alaska	Bondarenko, S. K., and V. I. Kontrimavichus. 1999
	<i>Echinoparyphium recurvatum</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Echinoparyphium</i> sp.	Florida	Forrester, D. J., and M. G. Spalding. 2003
	<i>Mecynophallus glandulosus</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Megalophallus reamesi</i>	Florida, British West Indies	Overstreet, R. M., and R. W. Heard III. 1995
		Gulf of Mexico	
	<i>Microphallus claviformes</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Microphallus sabanensis</i>	Venezuela	Fernandes, B. M. M., et al. 2015
	<i>Odhneria odhneri</i>	Georgia	Sinclair, N. R. 1971
	<i>Paramaritremopsis solielangi</i>	Belize	Canaris, A. G., and J. M. Kinsella. 2001
	<i>Parorchis holotestis</i>	Puerto Rico	Cable, R. M., et al. 1960
	<i>Probolocoryphe glandulosa</i>	Puerto Rico	Yamaguti, S. 1971
	<i>Psilochasmus</i> sp.	Florida	Loftin, H. 1960
	<i>Stephanoprora</i> sp.	Florida	Loftin, H. 1960
	<i>Stomylotrema fastosum</i>	Brazil	Fernandes, B. M. M., et al. 2015

Table I. (cont.) Helminth parasites reported for the shorebird family Charadriidae from the Americas

Native hosts in the Americas	Parasite	Geographic location	Citation
	<i>Anomotaenia ericetorum</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Aploparaksis diagonalis</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Hymenolepis clandestina</i>	Guadeloupe	Graber, M., and J. Euzeby. 1976b
	<i>Kowalewskiella cingulifera</i>	Guadeloupe	Graber, M., and J. Euzeby. 1976b
	<i>Liga brevis</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Liga</i> sp.	Florida	Loftin, H. 1960
	<i>Proterogynotaenia texanum</i>	Texas; Belize	Huey, R. 1985; Canaris, A. G., and J. M. Kinsella. 2001
	<i>Proterogynotaenia variabilis</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Schistocephalus solidus</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
	<i>Trichocephaloides beauporti</i>	Guadeloupe	Graber, M., and J. Euzeby. 1976a
	<i>Wardium squatarolae</i>	Alaska; Bristol Bay, Alaska	Bondarenko, S. K., and V. I. Kontrimavichus. 1999; Canaris, A. G., and J. M. Kinsella. 2000
	<i>Ancyracanthopsis winegardi</i>	Alberta; Manitoba; Gulf of Mexico, USA	Wong, P. L., et al. 1990; Anderson, R. C., et al. 1996
	<i>Chevreuxia americana</i>	Alberta, Manitoba; California, Texas, USA, Peru	Wong, P. L., and R. C. Anderson. 1991
	<i>Desmidocercella numidica</i>	British Columbia, Quebec, New Brunswick	Wong, P. L., et al. 1990
	<i>Eucoleus trilobus</i>	Alaska	Bondarenko, S. K., and V. I. Kontrimavichus. 1999
	<i>Scidiocara bihamata</i>	Alberta, Manitoba	Wong, P. L., et al. 1990
	<i>Scidiocara umbellifera</i>	Alberta, Quebec; Washington, Texas, USA	Wong, P. L., et al. 1990; Wong, P. L., and R. C. Anderson. 1991
	<i>Skrjabinocerca prima</i>	Alberta	Wong, P. L., et al. 1990
	<i>Skrjabinoclava bartlettiae</i>	Alberta, Louisiana	Wong, P. L., and R. C. Anderson. 1990b
	<i>Skrjabinoclava tupacincal</i>	Chile; Texas, Louisiana	Wong, P. L., and R. C. Anderson. 1987; Wong, P. L., et al. 1990
	<i>Skrjabinoclava wilsonae</i>	Alberta	Wong, P. L., and R. C. Anderson. 1990b
	<i>Streptocara</i> sp.	Alberta	Wong, P. L., et al. 1990
	<i>Viktorocara capillaris</i>	Alberta, Quebec, Texas; Washington, California, Louisiana	Wong, P. L., et al. 1990; Wong, P. L., and R. C. Anderson. 1991
	<i>Viktorocara limosae</i>	Alberta, Manitoba, Quebec; California, USA	Wong, P. L., et al. 1990; Wong, P. L., and R. C. Anderson. 1991
	<i>Viktorocara schejkini</i>	Canada	Gibson, G. G. 1972
	<i>Polymorphus magnus</i>	Bristol Bay, Alaska	Canaris, A. G., and J. M. Kinsella. 2000
Pied Plover SA			
<i>Vanellus cayanus</i> (<i>Hoploxypterus</i>)	No reference found	South America	Hayman, P., et al. 1986
Southern Lapwing M, CA, SA			
<i>Vanellus chilensis</i>	<i>Athesmia heterolecithodes</i>	Argentina	Lunaschi, L. I., et al. 2007
	<i>Athesmia</i> sp.	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Echinostoma aphylectum</i>	Brazil	Avancini, L. F. 2009
	<i>Leucochloridium parcum</i>	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Levinseniella cruzi</i>	Argentina; Mexico	Martorelli, S. R., and V. A. Ivanov. 1996; López, N. S. 1997
	<i>Neivaia cymbium</i>	Brazil	Avancini, L. F. 2009
	<i>Stomylotrema tagax</i>	Brazil	Fernandes, B. M. M., et al. 2015
	<i>Stomylotrema vicarium</i>	Brazil; Argentina	Avancini, L. F. 2009; Fernandes, B. M. M., et al. 2015
	<i>Gyrocoelia perversa</i>	Brazil	Avancini, L. F. 2009
	<i>Infula macrophallus</i>	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Infula</i> sp.	Chile	González-Acuña, D., et al. 2008

Table I. (cont.) Helminth parasites reported for the shorebird family Charadriidae from the Americas

Native hosts in the Americas	Parasite	Geographic location	Citation
	<i>Megalacanthus macracantha</i>	Brazil	Bona, F. V. 1994
	<i>Ancyracanthopsis coronata</i>	Brazil	Vicente, J. J., et al. 1995
	Capillariidae	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Dispharynx nasuta</i>	Chile; Brazil	González-Acuña, D., et al. 2008; Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Heterakis psophiae</i>	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Synhimantus nasuta</i>	Brazil	dos Santos, L. L., et al. 2020
	<i>Centrorhynchus</i> sp.	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	Gigantorhynchida	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Mediorhynchus</i> sp.	Brazil	Silveira, T. S., and C. Calegario-Marques. 2016
	<i>Plagiorhynchus</i> sp.	Chile; Brazil	González-Acuña, D., et al. 2008; Silveira, T. S., and C. Calegario-Marques. 2016
Andean lapwing SA <i>Vanellus resplendens</i>	<i>Aprocta ptiloscelidis</i>	Argentina	Drago, F. B., et al. 2020
<i>Vanellus</i> sp.	<i>Oxyspirura matogrosensis</i>	Brazil	Tavares, L. E. R., et al. 2017
Vagrant and rare Charadriidae in the Americas			
Little Ringed Plover <i>Charadrius dubius</i>	No reference found	Vagrant to Caribbean and Alaska	Chesser, R. T., et al. 2019
Greater Sand-Plover <i>Charadrius leschenaultii</i>	No reference found	Vagrant California, Florida	Chesser, R. T., et al. 2019
Lesser Sand-Plover <i>Charadrius mongolus</i>	No reference found	Rare in Alaska	Paulson, D. 2005
Eurasian Dotterel <i>Charadrius morinellus</i> (<i>Eudromias</i>)	No reference found	Rare in Alaska, vagrant Pacific Coast to Baja, California	Paulson, D. 2005
Oriental Plover <i>Charadrius veredus</i>	No reference found	Accidental/casual	Chesser, R. T., et al. 2019
Eurasian Golden Plover <i>Pluvialis apricaria</i>	No reference found	Exceptional vagrant to North America	Chesser, R. T., et al. 2019
Northern Lapwing <i>Vanellus vanellus</i>	No reference found	Vagrant E. North America, Newfoundland, rare Alaska, W to Ohio and S to Florida and Georgia, Bermuda, and the Caribbean	Chesser, R. T., et al. 2019

Table II. Trematode parasite-host list for shorebird family Charadriidae of the Americas

Parasite	Host
<i>Acanthoparyphium pagollae</i>	<i>Charadrius wilsonia</i>
<i>Athesmia heterolecithodes</i>	<i>Vanellus chilensis</i>
<i>Athesmia</i> sp.	<i>Vanellus chilensis</i>
<i>Collyriclum</i> sp.	<i>Charadrius vociferous</i>
<i>Cotylurus cornutus</i>	<i>Pluvialis squatarola</i>
<i>Cyclocoelum lanceolatum</i>	<i>Charadrius vociferous</i>
<i>Cyclocoelum obscurum</i>	<i>Charadrius semipalmatus</i> , <i>C. vociferous</i>
<i>Cyclocoelum triangularis</i>	<i>Charadrius vociferous</i>
<i>Echinochasmus</i> sp.	<i>Charadrius semipalmatus</i>
<i>Echinoparyphium aconiatum</i>	<i>Charadrius vociferous</i>
<i>Echinoparyphium baculus</i>	<i>Charadrius vociferous</i>
<i>Echinoparyphium recurvatum</i>	<i>Pluvialis squatarola</i>
<i>Echinoparyphium</i> sp.	<i>Pluvialis squatarola</i>
<i>Echinostoma aphyllactum</i>	<i>Vanellus chilensis</i>
<i>Echinostoma charadrii</i>	<i>Pluvialis fulva</i>
<i>Echinostoma</i> sp.	<i>Charadrius vociferous</i>
<i>Gynaecotyla adunca</i>	<i>Charadrius wilsonia</i>
<i>Gynaecotyla sippiwissettensis</i>	<i>Charadrius melodus</i>
<i>Leucochloridium parcum</i>	<i>Vanellus chilensis</i>
<i>Leucochloridium propinqua</i>	<i>Charadrius</i> sp.
<i>Levinseniella carcinidis</i>	<i>Charadrius semipalmatus</i>
<i>Levinseniella carteretensis</i>	<i>Charadrius wilsonia</i>
<i>Levinseniella cruzi</i>	<i>Charadrius semipalmatus</i> , <i>Vanellus chilensis</i>
<i>Levinseniella hunteri</i>	<i>Charadrius wilsonia</i>
<i>Levinseniella leptophallus</i>	<i>Charadrius wilsonia</i>
<i>Levinseniella propinqua</i>	<i>Pluvialis dominica</i>
<i>Maritrema gratiosum</i>	<i>Charadrius semipalmatus</i>
<i>Maritrema ovatum</i>	<i>Charadrius semipalmatus</i>
<i>Maritreminoides patulum</i>	<i>Charadrius wilsonia</i>
<i>Mecynophallus glandulosus</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Megalophallus reamesi</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Microphallus claviformes</i>	<i>Charadrius semipalmatus</i> , <i>C. wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Microphallus kinsellai</i>	<i>Charadrius semipalmatus</i>
<i>Microphallus quechuasensis</i>	<i>Charadrius vociferous</i>
<i>Microphallus sabanensis</i>	<i>Pluvialis squatarola</i>
<i>Neivaia cymbium</i>	<i>Charadrius wilsonia</i> , <i>Vanellus chilensis</i>
<i>Notocotylus attenuatus</i>	<i>Charadrius vociferous</i>
<i>Notocotylus chionis</i>	<i>Charadrius falklandicus</i>
<i>Notocotylus stagnicola</i>	<i>Charadrius semipalmatus</i>
<i>Odhneria odhneri</i>	<i>Charadrius falklandicus</i> , <i>C. wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Paramaritrempsis solielangi</i>	<i>Charadrius nivosus</i> (and <i>alexandrinus</i>), <i>C. semipalmatus</i> , <i>Pluvialis squatarola</i>
<i>Paramonostomum actidis</i>	<i>Charadrius hiaticula</i> , <i>C. semipalmatus</i> , <i>C. wilsonia</i>
<i>Parorchis holotestis</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Plagiorchis vitellatus</i>	<i>Charadrius vociferous</i>
<i>Probolocoryphe glandulosa</i>	<i>Pluvialis squatarola</i>
<i>Pseudospelotrema charadrii</i>	<i>Charadrius wilsonia</i>
<i>Psilochasmus</i> sp.	<i>Pluvialis squatarola</i>

Table II. Trematode parasite-host list for shorebird family Charadriidae of the Americas

Parasite	Host
<i>Spelotrema excellens</i>	<i>Charadrius</i> sp.
<i>Stephanoprora</i> sp.	<i>Pluvialis squatarola</i>
<i>Stomylotrema fastosum</i>	<i>Pluvialis squatarola</i>
<i>Stomylotrema tagax</i>	<i>Vanellus chilensis</i>
<i>Stomylotrema vicarium</i>	<i>Charadrius vociferous</i> , <i>Vanellus chilensis</i>
<i>Tanaisia fedtschenkoi</i>	<i>Charadrius</i> sp., <i>C. vociferous</i>
<i>Tanaisia valida</i>	<i>Charadrius wilsonia</i>
<i>Transcoelom</i> sp.	<i>Charadrius vociferous</i>
<i>Uvitellina macroisophaga</i>	<i>Charadrius vociferous</i>
<i>Uvitellina psuedocotylea</i>	<i>Charadrius vociferous</i>
<i>Zygocotyle lunata</i>	<i>Charadrius wilsonia</i>

Table III. Cestode parasite-host list for shorebird family Charadriidae from the Americas

Parasite	Host
<i>Anomotaenia bacilligera</i>	<i>Charadrius vociferous</i>
<i>Anomotaenia ericetorum</i>	<i>Pluvialis squatarola</i>
<i>Anomotaenia filovata</i>	<i>Charadrius vociferous</i>
<i>Aploparaksis brachyphallos</i>	<i>Charadrius hiaticula</i>
<i>Aploparaksis diagonalis</i>	<i>Pluvialis squatarola</i>
<i>Aploparaksis</i> sp.	<i>Charadrius vociferous</i>
<i>Choanotaenia macracantha</i>	<i>Charadrius vociferous</i>
<i>Choanotaenia</i> sp.	<i>Charadrius vociferous</i>
<i>Gyrocoelia crassa</i>	<i>Charadrius collaris</i>
<i>Gyrocoelia fuhrmani</i>	<i>Charadrius collaris</i>
<i>Gyrocoelia miligani</i>	<i>Charadrius nivosus</i> (and <i>alexandrinus</i>), <i>C. vociferous</i>
<i>Gyrocoelia pagollae</i>	<i>Charadrius wilsonia</i>
<i>Gyrocoelia perversa</i>	<i>Vanellus chilensis</i>
<i>Hymenolepis clandestina</i>	<i>Pluvialis squatarola</i>
<i>Hymenolepis collariella</i>	<i>Charadrius collaris</i>
<i>Hymenolepis hughesi</i>	<i>Charadrius collaris</i> , <i>C. melodus</i> , <i>C. semipalmatus</i>
<i>Infula macrophallus</i>	<i>Vanellus chilensis</i>
<i>Infula</i> sp.	<i>Vanellus chilensis</i>
<i>Kowalewskiella cingulifera</i>	<i>Pluvialis squatarola</i>
<i>Liga brevis</i>	<i>Pluvialis squatarola</i>
<i>Liga</i> sp.	<i>Pluvialis squatarola</i>
<i>Megalacanthus macracantha</i>	<i>Vanellus chilensis</i>
<i>Megalacanthus</i> sp.	<i>Charadrius vociferous</i>
<i>Monopylidium</i> sp.	<i>Charadrius vociferous</i>
<i>Nadejdolepis litoralis</i>	<i>Charadrius nivosus</i> (and <i>alexandrinus</i>)
<i>Nadejdolepis paranitidulans</i>	<i>Charadrius nivosus</i> (and <i>alexandrinus</i>)
<i>Paraliga charadrii</i>	<i>Charadrius semipalmatus</i>
<i>Paraprogynotaenia jimenezi</i>	<i>Charadrius wilsonia</i>
<i>Progynotaenia americana</i>	<i>Charadrius melodus</i> , <i>C. semipalmatus</i> , <i>C. vociferous</i> , <i>Pluvialis dominica</i>
<i>Proterogynotaenia neoarctica</i>	<i>Charadrius vociferous</i>
<i>Proterogynotaenia odhneri</i>	<i>Charadrius vociferous</i>
<i>Proterogynotaenia texanum</i>	<i>Pluvialis squatarola</i>
<i>Proterogynotaenia variabilis</i>	<i>Pluvialis squatarola</i>
<i>Schistocephalus solidus</i>	<i>Pluvialis squatarola</i>
<i>Shiptyia inermis</i>	<i>Charadrius nivosus</i> (and <i>alexandrinus</i>)
<i>Taenia charadrii</i>	<i>Charadrius collaris</i>
<i>Trichocephaloides beauporti</i>	<i>Pluvialis squatarola</i>
<i>Wardium squatarolae</i>	<i>Pluvialis squatarola</i>

Table IV. Nematode parasite-host list for shorebird family Charadriidae of the Americas

Parasite	Host
<i>Ancyracanthopsis coronata</i>	<i>Vanellus chilensis</i>
<i>Ancyracanthopsis winegardii</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Aprocta ptiloscelidis</i>	<i>Vanellus resplendens</i>
<i>Capillaria contorta</i>	<i>Charadrius vociferous</i> , <i>Charadrius</i> sp.
Capillariidae	<i>Vanellus chilensis</i>
<i>Chevreuxia americana</i>	<i>Charadrius melodus</i> , <i>C. semipalmatus</i> , <i>C. vociferous</i> , <i>Pluvialis squatarola</i>
<i>Chevreuxia</i> sp.	<i>Charadrius vociferous</i>
<i>Chevreuxia vanelli</i>	<i>Charadrius vociferous</i>
<i>Desmidocercella numidica</i>	<i>Pluvialis squatarola</i>
<i>Dispharynx nasuta</i>	<i>Charadrius vociferous</i> , <i>Vanellus chilensis</i>
<i>Dispharynx spiralis</i>	<i>Charadrius vociferous</i>
<i>Eucoleus trilobus</i>	<i>Pluvialis squatarola</i>
<i>Eulimdana lari</i>	<i>Charadrius hiaticula</i>
<i>Eulimdana sonni</i>	<i>Charadrius hiaticula</i>
<i>Heterakis psophiae</i>	<i>Vanellus chilensis</i>
<i>Oxynema</i> sp.	<i>Oreopholus ruficollis</i>
<i>Oxyspirura matogrosensis</i>	<i>Vanellus</i> sp.
<i>Oxyspirura</i> sp.	<i>Charadrius vociferous</i>
<i>Porrocaecum ensicaudatum</i>	<i>Charadrius</i> sp., <i>Pluvialis dominica</i>
<i>Porrocaecum falklandicus</i>	<i>Charadrius modestus</i>
<i>Porrocaecum semiteres</i>	<i>Pluvialis dominica</i>
<i>Schistorophus laciniatus</i>	<i>Charadrius vociferous</i>
<i>Sciadiocara bihamata</i>	<i>Pluvialis squatarola</i>
<i>Sciadiocara umbellifera</i>	<i>Charadrius collaris</i> , <i>C. wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Skrjabinocerca prima</i>	<i>Charadrius vociferous</i> , <i>Pluvialis squatarola</i>
<i>Skrjabinoclava bartlettiae</i>	<i>Pluvialis squatarola</i>
<i>Skrjabinoclava horrida</i>	<i>Charadrius semipalmatus</i> , <i>C. wilsonia</i>
<i>Skrjabinoclava morrisoni</i>	<i>Charadrius semipalmatus</i>
<i>Skrjabinoclava pusillae</i>	<i>Charadrius semipalmatus</i> , <i>C. wilsonia</i>
<i>Skrjabinoclava semipalmatae</i>	<i>Charadrius semipalmatus</i> , <i>C. wilsonia</i>
<i>Skrjabinoclava</i> sp.	<i>Charadrius semipalmatus</i>
<i>Skrjabinoclava tupacincay</i>	<i>Charadrius semipalmatus</i> , <i>Pluvialis squatarola</i>
<i>Skrjabinoclava wilsonae</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>
Spirurid larvae	<i>Charadrius vociferous</i>
Spiruroidean nematode	<i>Charadrius vociferous</i>
<i>Stellocaronema skrjabini</i>	<i>Charadrius collaris</i> , <i>C. semipalmatus</i> , <i>C. vociferous</i>
<i>Streptocara</i> sp.	<i>Charadrius vociferous</i> , <i>Pluvialis squatarola</i>
<i>Strongyloides</i> sp.	<i>Charadrius vociferous</i>
<i>Synhimantus nasuta</i>	<i>Vanellus chilensis</i>
<i>Tetrameres megaphasmidiata</i>	<i>Charadrius falklandicus</i>
<i>Tropisurus nouveli</i>	<i>Charadrius wilsonia</i>
<i>Viktorocara capillaris</i>	<i>Charadrius semipalmatus</i> , <i>C. vociferous</i> , <i>C. wilsonia</i> , <i>Pluvialis squatarola</i>
<i>Viktorocara limosae</i>	<i>Charadrius semipalmatus</i> , <i>Pluvialis squatarola</i>
<i>Viktorocara schejkini</i>	<i>Charadrius wilsonia</i> , <i>Pluvialis squatarola</i>

Table V. Acanthocephala parasite-host list for shorebird family Charadriidae of the Americas

Parasite	Host
Acanthocephalan larvae	<i>Charadrius vociferous</i>
<i>Arythmorhynchus comptus</i>	<i>Pluvialis dominica</i>
<i>Centrorhynchus</i> sp.	<i>Vanellus chilensis</i>
Gigantorhynchida	<i>Vanellus chilensis</i>
<i>Mediorhynchus orientalis</i>	<i>Pluvialis dominica</i>
<i>Mediorhynchus papillosus</i>	<i>Charadrius vociferous</i>
<i>Mediorhynchus robustus</i>	<i>Charadrius vociferous</i>
<i>Mediorhynchus</i> sp.	<i>Vanellus chilensis</i>
<i>Plagiorhynchus charadrii</i>	<i>Charadrius semipalmatus, Pluvialis dominica</i>
<i>Plagiorhynchus crassicolle</i>	<i>Charadrius wilsonia</i>
<i>Plagiorhynchus</i> sp.	<i>Vanellus chilensis</i>
<i>Polymorphus magnus</i>	<i>Pluvialis squatarola</i>
<i>Polymorphus minutus</i>	<i>Charadrius vociferous</i>

Tables VI. Summary data compiled from Tables I–V and Literature Cited**VI. A. Hosts and number of species**

Host (n = 21)	Trematode	Cestode	Nematode	Acanthocephala	Total	%
<i>Charadrius vociferous</i>	15	11	15	4	45	23
<i>Pluvialis squatarola</i>	14	11	14	1	40	20
<i>Charadrius wilsonia</i>	16	2	9	1	28	14
<i>Charadrius semipalmatus</i>	11	3	10	1	25	13
<i>Vanellus chilensis</i>	8	4	5	4	21	11
<i>Charadrius collaris</i>	0	5	2	0	7	4
<i>Pluvialis dominica</i>	1	1	2	3	7	4
<i>Charadrius nivosus</i> (and <i>alexandrinus</i>)	1	4	0	0	5	3
<i>Charadrius</i> sp.	3	0	2	0	5	3
<i>Charadrius hiaticula</i>	1	1	2	0	4	2
<i>Charadrius melodus</i>	1	2	1	0	4	2
<i>Charadrius falklandicus</i>	2	0	1	0	3	2
<i>Charadrius modestus</i>	0	0	1	0	1	1
<i>Oreopholus ruficollis</i>	0	0	1	0	1	1
<i>Pluvialis fulva</i>	1	0	0	0	1	1
<i>Vanellus resplendens</i>	0	0	1	0	1	1
<i>Vanellus</i> sp.	0	0	1	0	1	1
<i>Charadrius alticola</i>	0	0	0	0	0	0
<i>Charadrius montanus</i>	0	0	0	0	0	0
<i>Phegornis mitchellii</i>	0	0	0	0	0	0
<i>Vanellus cayanus</i>	0	0	0	0	0	0
	74	44	67	14	199	100%

VI. B. Number and percentage of helminth species for the four taxa

	Number of helminth species	Percent
Trematodes	58	38
Cestodes	38	25
Nematodes	44	29
Acanthocephala	13	9
Total	153	100%

Tables VI. (cont.) Summary data compiled from Tables I–V and Literature Cited

VI. C. Geographic locations of infected hosts

Location	Number of infected hosts
USA	144
Canada	59
South America	44
Puerto Rico	17
Alaska	12
Central America	12
Cuba	10
North America	7
Guadeloupe	6
Hawaii	4
Mexico	3
Antigua	1
West Indies	1

Note: American states and Canadian provinces are summed under USA and Canada, respectively.

VI. D. Host-parasite citations per decade

Decade	Number of citations
1930–39	1
1940–49	2
1950–59	9
1960–69	14
1970–79	12
1980–89	7
1990–1999	19
2000–2009	8
2010–2020	6

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